STAT

50038

T

MLT-3164-L-5853
18 February 1971

Officer-in-Charge
USA Communication Service Group
Post Office Box 72
NAS Moffett Field, California 94035

T Subject:

Gentlemen:

Enclosed is Revision "C" to ATP 600000, the Acceptance Test Procedure for Light Table MLT-1540. The approved Acceptance Test Plan is hereby revised to facilitate testing and to incorporate provisions for the acceptance of all items, or equipment configurations, deliverable under the subject contract.

If further information is required, kindly contact the Program Manager,
T or the undersigned.

Very truly yours,

STAT

STAT

Supervisor, Contract Administration

WGB:mb

Enclosure: ATP for MLT 1540

Declass review by NGA/DoD

GENERAL SERVICES ADMINISTRATION

ROUTING SLIP

TO	CO	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10

	BUILDING, ROOM, ETC.
	NPIC
3.	
4.	
5.	

☐ ALLOTMENT SYMBOL	☐ HANDLE DIRECT	☐ READ AND DESTROY
☐ APPROVAL	☐ IMMEDIATE ACTION	☐ RECOMMENDATION
☐ AS REQUESTED	☐ INITIALS	☐ SEE ME
☐ CONCURRENCE	☐ NECESSARY ACTION	☐ SIGNATURE
☐ CORRECTION	☐ NOTE AND RETURN	☐ YOUR COMMENT
☐ FILING	☐ PER OUR CONVERSATION	☐ YOUR INFORMATION
☐ FULL REPORT	☐ PER TELEPHONE CONVERSATION	☐

☐ ANSWER OR ACKNOWLEDGE ON OR BEFORE _____

☐ PREPARE REPLY FOR THE SIGNATURE OF _____

REMARKS

ATP for tables for your use and retention

FROM	CO	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10

	BUILDING, ROOM, ETC.
	TELEPHONE / DATE 3/19/76

GSA FORM 14
FEB 62

CLASSIFICATION

DRAWING NO.
ATP 600000

SHEET 1 OF 6

USED ON
MLT-1540

DATE
30OCT70

REVISION (See last sheet for record)
Rev. C

TITLE

ACCEPTANCE TEST PROCEDURE FOR LIGHT TABLE MLT-1540

STAT

SERIAL NUMBER_____

TEST BY - _____

DATE_____

TIME_____

This item has successfully performed to all of the requirements as itemized and checked in the body of this procedure.

_____ STAT
Date Signature

CLASSIFICATION

DOCUMENT NO. ATP 600000

SHEET NO. 2

1.0 PURPOSE

The purpose of the Acceptance Test Procedure is to verify that the Modular Light Table, MLT-1540, meets its functional and performance requirements.

2.0 EQUIPMENT REQUIRED

2.1 MLT-1540 complete per [redacted] Drawing No. 600300 and 600100. STAT

2.2 Test film as follows:

9.5 inch wide, 4 mil base, 1,000 foot, 1 roll

5 inch film, 1,000 foot, 2 rolls

70mm film, 1,000 foot, 2 rolls

2.3 Empty take-up spools.
(This should be commensurate with the number of films required as listed above.)

2.4 Stop watch

2.5 GFE foot lambert meter (Weston Model 759)

3.0 ACCEPTANCE TEST

Completion and verification of each of the following items shall be noted by the inspector's stamp or initials in the space provided.

3.1 Mechanical and visual inspection

The MLT shall be carefully examined to determine conformance to the requirements of [redacted] Drawings 600300 and 600100; Outline Drawing. Moving parts such as covers, latches and gear mechanisms shall be checked to assure proper fit and operation without sticking or binding. Quality of workmanship, proper materials and finishes, nameplate installation, etc. shall be verified. STAT

_____

3.2 Connect table to 117 VAC, 25 amp power source.
(220 VAC for -5 configuration)

3.3 Turn lights on to max intensity, both sides.

a) Record time turned on. _____ _____
Time on

3.4 Operate the elevating mechanism.
(Not applicable to -1 configuration)
a) Note max and min distance from floor. _____
(Max = 40" ± 1" Min = 22" ± 1")

STAT

3.5 Check operation of manual hand crank elevation for smoothness of operation. _____

3.6 Operate carriage motion system with table horizontal, and weight of optics.(≃ 10 lbs) _____

a) Note force required to move carriage with motors disengaged in x and y direction. (≤ 4 lbs both axis) _____

b) With motors powered in x and y axis and speed control set at 0, verify that 10 lbs will not move bridge. (Not applicable to -1 configuration) _____

c) Determine min consistant speed, x axis. (3" travel ≥ 60 seconds without stalling.) (Not applicable to -1 & -3 configuration) _____

d) Determine min consistant speed, y axis. (3" travel ≥ 60 seconds without stalling.) (Not applicable to -1 & -3 configuration) _____

e) Note that at horizontal table is level ± 1°. _____

3.7 Operate tilt mechanism. (Not applicable to -1 configuration)

a) Note that full tilt provides 15° ± 1°. _____

3.8 Operate carriage motion system with table tilted, and weight of optics on carriage. (Not applicable to -1 configuration)

a) Check operation of "Fail-Safe" system for y axis movement. (Include x axis check for -4 configuration) _____

b) Determine min consistant speed, x axis. (3" travel ≥ 60 seconds without stalling.) (Not applicable to -3 configuration) _____

c) Determine min consistant speed, y axis. (3" travel ≥ 60 seconds without stalling.) (Not applicable to -3 configuration) _____

3.9 Return table to level position. Mount dial indicator on optics holder with weight of optics attached. Check for carriage drift.(No visable movement of dial.) _____

3.10 Check parallelism of optics carriage to format surfaces with dial indicator.

a) Note max deviation. (within .015 inches) _____

3.11 Mount two 1,000 ft rolls of 70mm film, normal mode, emulsion up and emulsion down.

a) Note time to rewind, both rolls at same time, in opposite direction. (≤ 3 min) _____

b) Note tracking characteristics. _____

STAT

CLASSIFICATION

ATP 600000

SHEET NO. 4

c) Note effect on stationary web when other moves and stops rapidly. Check both webs. (No interreaction) _____

d) Verify min speed on front roll only. (Insure smooth control from 0 to 1 inch/sec) _____

3.12 Mount 1,000 ft roll 9 1/2" film, normal mode, emulsion up.

a) Note time to completely rewind. ($\leq$ 3 min) _____

b) Start and stop rapidly from full speed (no take-up loop). No slack loops or excessive tension. _____

c) Operate take-up loop. Note max capability. ($\geq$ 76 inches) _____

d) Scan slowly with take-up loop. Note tracking stability. _____

3.13 Mount two 1,000 ft rolls 5" film, split vertical mode, emulsion up and emulsion down.

a) Operate to insure split vertical capability. _____

3.14 Max illumination.

Mark off table surfaces with china markers to show restricted area using the plastic template.

a) Note time. Check that 30 minutes min have elapsed since 3.3 a).

b) Note illumination at left format center. ($\geq$ 3,000 F.L.) _____ Max illum. _____

c) Note illumination at right format center. ($\geq$ 3,000 F.L.) _____ Max illum. _____

d) Note difference between 3.14 b) and 3.14 c). ($\geq$ 150 F.L.) _____

3.15 Illumination left format.

a) Set center of left format to 3,000 F.L. Verify. _____

Set right format to minimum.

b) Note deviation from previous reading. ($\pm$ 150 F.L.) Ref. 3.15 a). _____ deviation _____

Return right format to maximum.

c) Note min illumination over entire area. _____ ent. area _____

CLASSIFICATION

ATP 600000

SHEET NO. 5

d) Note min illuminiation in restricted area. _____ res. area _____

Set left illumination at minimum.

e) Note reading at format center. (≤ 200 F.L.) _____ Min illum. _____

Set right illumination at minimum.

f) Note deviation from previous min. (≤ 150 F.L.) Ref. 3.15 d) _____ deviation _____

Return illumination, both sides, to max.

3.16 Illumination on right format surface.

a) Set center of right format to 3,000 F.L. Verify. _____

Set left format to minimum.

b) Note deviation from previous reading. (± 150 F.L.) Ref. 3.16 a). _____ deviation _____

Return left format to maximum.

c) Note minimum illumination over entire surface. _____ ent. surf. _____

d) Note minimum illumination in restricted area. _____ res. area _____

Set illumination at minimum.

e) Note reading at format center. (≤ 200 F.L.) _____ Min illum. _____

Set left illumination at minimum.

f) Note deviation from previous min. (≤ 150 F.L.) Ref. 3.16 e). _____ deviation _____

3.17 Observe light sources for evidence of flicker.

a) Set both at max. Verify no objectionable flicker. _____

b) Set both at min. Verify no objectionable flicker. _____

3.18 Film masking system.

a) Insure lamps extinguish in proper sequence. _____

STAT

CLASSIFICATION

DOCUMENT NO. ATP 600000

SHEET NO. 6

AUTHORITY

REV	SH	DESCRIPTION	DATE	AUTHORITY
A		Deleted paragraphs 3.10, 3.14 a) through d), 3.15 a), c), e). Revised paragraph 3.16 a) Reason: To eliminate destructive tests, reduce test time and for clarification.		
B		Revised entire test sequence to facilitate more efficient testing. Deleted paragraphs 3.6, 3.7, 3.8 Reason: Items are covered in 3.1 Paragraph 3.4 Added $\pm$ 1" tolerance Paragraph 3.9 Added "No visable movement of dial."		
C		Added provisions for -1, -3, -4 & -5 configurations.		

Physical Measurements of Carriage Assembly of the [redacted] 1540 Model II

STAT

1.1 Velocity of carriage in the X and Y directions

+X is to the right
+Y is to the rear
+Z is up

	minimum speed				maximum speed			
	Horizontal		tilted		Horizontal		tilted	
+X	.030	in/sec	.029	in/sec	.555	in/sec	.552	in/sec
−X	.036	"	.032	"	.559	"	.560	"
+Y	.031	"	.018	"	.502	"	.482	"
−Y	.029	"	.024	"	.518	"	.536	"

once a velocity had been chosen the velocity varied no more than 5%

1.2 Force to move locked carriage in X and Y directions

	Static				Dynamic			
	Horizontal		tilted		Horizontal		tilted	
+X	10	lbs	14	lbs	10	lbs	9	lbs
−X	10	"	12	"	10	"	9	"
+Y	34	"	over 45	"	24	"	—	"
−Y	30	"	15	"	22	"	8	"

1.3 Force to move unlocked carriage in X and Y directions

	Static				Dynamic			
	Horiz		tilted		Horiz		tilted	
+X	1.5	lbs	1.5	lbs	1.5	lbs	1.5	lbs
-X	.75	"	.75	"	.75	"	.75	"
+Y	1.5	"	excess of 45	"	1.5	"	—	"
-Y	1.5	"	15	"	1.5	"	8	"

1.4 Slop (locked in mode only)
limits of free motion to a place or rest

	Horizontal	tilted
ΔX	.009 in	.009 in
ΔY	.0005 in	.000 "

1.5 Force to raise ~~and lower~~ ring assembly
Pod + Rhomboids weighing 6 lbs 13 oz were in place

	Static				dynamic			
	Horiz		tilted		Horiz		tilted	
+Z	13	lbs	17	lbs	13	lbs	17	lbs
-Z	"		"		"		"	

1.6 Drift in virtual direction

a weight of 11 lbs 9.5 oz was placed on the ring assembly a displacement measured with a dial indicator

distance 0.000 inches
time laps 40 minutes

1.7 Elasticity

deflection per force applied
all forces were applied through the optical axis with the carriage centered on the format,

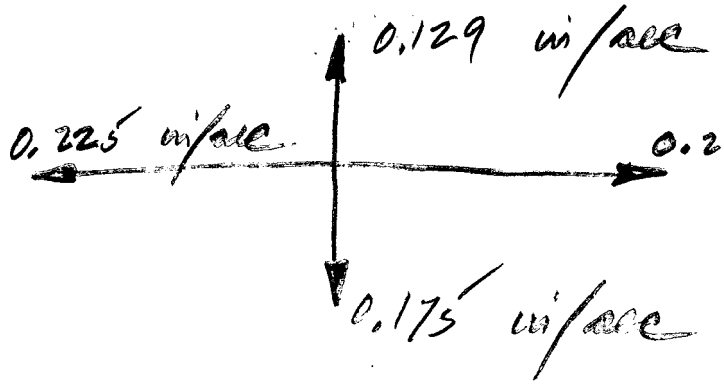
a force of 10 lbs. was applied in all cases and the measurement of deflection was made in the direction of force.

+X	.063	inches
−X	.037	"
+Y	.021	"
−Y	.022	"
+Z	not measured	
−Z	.018	"

AT

28 November 1970

15° Tilt – Constant Speed Setting

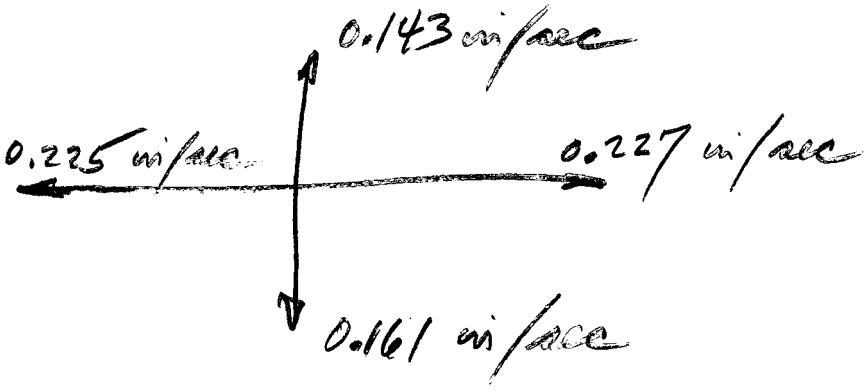


$\frac{225}{129} = 1.74$

$\frac{225}{175} = 1.29$

$\frac{175}{129} = 1.36$

7° Tilt

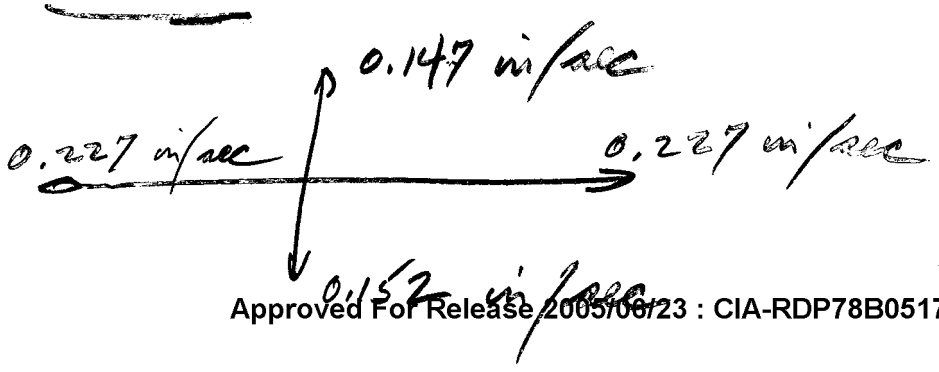


$\frac{227}{143} = 1.59$

$\frac{227}{161} = 1.41$

$\frac{161}{143} = 1.13$

0° Tilt



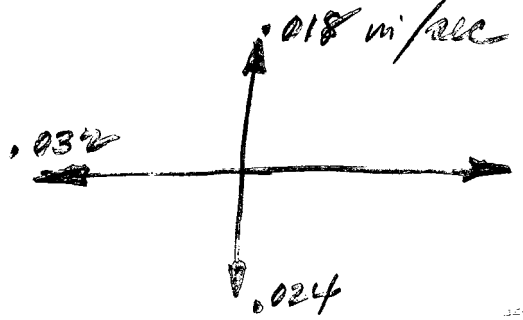
$\frac{227}{147} = 1.54$

$\frac{227}{152} = 1.49$

$\frac{152}{147} = 1.03$

ST

Minimum Speeds



$\frac{.029}{.018} = 1.61$

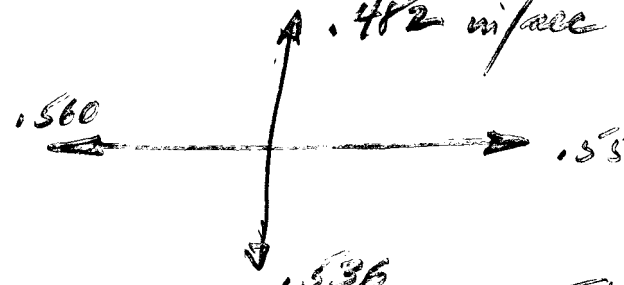
$\frac{.029}{.024} = 1.21$

$\frac{.032}{.018} = 1.78$

$\frac{.032}{.024} = 1.33$

Tilted 15°

Maximum Speeds



$\frac{.552}{.482} = 1.14$

$\frac{.552}{.536} = 1.03$

$\frac{.560}{.482} = 1.16$

$\frac{.560}{.536} = 1.04$

Tilted 15°